SPOTLIGHT ON MARYLAND

MHCC MARYLAND HEALTH CARE COMMISSION

Patterns of Use and Spending for High-Cost Drug Users, 2004: Non-Elderly Maryland Residents with Private Insurance[1]

In 2004, spending on outpatient prescription drugs in Maryland was $4.0 billion, or about 14 percent of total health care spending.[2] Compared to the rapid increases in the late 1990s, growth in prescription drug spending in Maryland has slowed to 7 percent per capita in 2004. Several factors may contribute to continued strong growth, however, including a number of new molecular entities approved by the Food and Drug Administration in recent years with the potential to become blockbuster drugs and the implementation of the Medicare Part D prescription drug benefit, which will likely increase consumer demand. In order to better understand the underlying nature of drug spending and the likelihood of increased growth, this Spotlight focuses on those persons with the highest drug spending.

One-quarter of the users are responsible for 80 percent of private prescription drug spending.

Previous studies have shown that drug spending in Maryland, like medical care spending nationally, tends to be highly skewed, with a relatively small proportion of users accounting for a large proportion of expenditures. For this analysis, prescription drug users were ranked by total expenditures to determine how expenditures were distributed across the privately insured, non-elderly population. As shown in Table 1, privately insured prescription drug spending in Maryland in 2004 conforms to the expected pattern—persons in the top 1 percent of drug spending accounted for 18 percent of all prescription drug expenditures. Those in the top 5 percent accounted for 41 percent of aggregate expenditures, and persons in the top 25 percent incurred 81 percent of prescription drug dollars. The bottom 50 percent of prescription drug users incurred only 5 percent of aggregate drug expenditures. The remainder of this Spotlight explores the characteristics and drug utilization patterns of these "high-cost users"—the 25 percent of prescription drug users who accounted for just over 80 percent of spending.

Table 1. Distribution of Prescription Drug Expenditures, Non-Elderly, Privately Insured, 2004

USERS	PERCENT OF ALL SPENDING
Top 1 percent	18
Top 5 percent	41
Top 25 percent	81
Top 50 percent	95
Bottom 50 percent	5

Note: Limited to privately insured Maryland residents less than 65 years of age; ranked by total expenditures.

High-cost users spend almost 13 times as much as other users.

In 2004, the median expenditure[3] on prescription drugs for high-cost users was just over $1,500, compared to $120 for non-high-cost users in the non-elderly, privately insured Maryland population (see Table 2). Thus, the typical high-cost user spends almost 13 times as much as other users. The discrepancy with respect to out-of-pocket spending is not quite as large though still substantial: high-cost users are responsible for paying $375 annually compared to $49 for other users, or almost 8 times as much.

Table 2. Median Prescription Drug Spending and Use, Non-Elderly, Privately Insured, 2004

	HIGH-COST USERS*	OTHER USERS
PER USER		
Total Spending	$1,522	$120
Out-of-Pocket Costs	$375	$49
Number of Prescriptions	19	3
Number of Medicated Days**	696	62
Cost per Medicated Day	$2.40	$1.68
PER PRESCRIPTION		
Total Spending	$85	$33
Out-of-Pocket Costs	$20	$14
Number of Days Supplied	32	20

* High-cost users defined as persons with spending in the top 25 percent of the spending distribution.

** Number of medicated days is equal to the median of the sum of all days supplied for all drugs used by each person in the category.

Prescriptions themselves are not quite as highly concentrated as expenditures—the high-cost users accounted for 63 percent of prescriptions (as opposed to 81% of dollars). However, the typical high-cost user filled a substantially higher number of prescriptions than other users—19 prescriptions in 2004 compared to just 3; and these prescriptions were usually for a larger supply—the median number of medicated days per prescription was 32 for high-cost users compared to 20 days for other users. In addition, the drugs used tend to be more costly—median spending per prescription for high-cost users was $85 versus $33 for other users, and the average cost per day of treatment across all prescriptions was $2.40 for high-cost users compared to $1.68 for other users.[4]

As shown in Table 3, high-cost users are substantially older than other users, with the median age for high-cost users at 48 compared to 33 for other users. Not surprisingly, the biggest difference is in the less-than-18 age group, which contains only 8 percent of high-cost users. There is no difference in the gender distribution and only minor differences between high-cost and other users in type of insurance coverage.

Table 3. Characteristics of High-Cost Prescription Drug Users, Non-Elderly, Privately Insured, 2004

	HIGH-COST USERS*	OTHER USERS
AGE		
Median	48	33
Percent distribution		
Less than 18 years	8%	26%
18-34 years	14%	27%
35-54 years	49%	38%
55-64 years	29%	8%
GENDER		
Male	43%	43%
Female	57%	57%
INSURANCE COVERAGE		
Individual market	2%	3%
Private, large group	46%	46%
Public employees	22%	18%
CSHBP**	25%	22%
Unknown	5%	12%

* High-cost users are defined as persons with spending in the top 25 percent of the spending distribution.

**Comprehensive Standard Health Benefit Plan, which is available to firms with 50 employees or fewer.

Among high-cost users, generic drugs account for 38 percent of prescriptions but only 12 percent of spending.

For some time, insurers and pharmacy benefit managers have encouraged the use of generic drugs as one of many strategies intended to slow the growth of prescription drug costs. For high-cost users, these cost containment measures may take on added importance. The distributions of prescriptions and total expenditures for generic, new, branded (those approved between 2001 and 2004) and older branded (those approved prior to 2001) prescription drugs are presented in Table 4.

Generic drugs comprise 38 percent of prescriptions filled by high-cost users. New, branded drugs accounted for only 13 percent of their prescriptions but 20 percent of their spending, and older branded drugs comprised almost two-thirds of their spending. The differences between the generic-branded mix of drugs for high-cost users compared to other users were substantial—spending for high-cost users was more concentrated in branded drugs, particularly older ones, than was spending for other users. Twenty-eight percent of spending for other users was on generic drugs, over twice the proportion as for high-cost users. In terms of prescriptions, other users filled over half of their prescriptions with generic drugs compared to 38 percent of prescriptions for high-cost users.

The proportion of prescriptions (retail store and mail order combined) filled with generic drugs for all users in this non-elderly population (44%) is in line with generic fill rates reported in other privately insured populations. Information from the Pharmacy Benefit Management Institute (collected from approximately 400 employers and over 8 million beneficiaries) indicates that, in 2004, generics accounted for 47 percent of retail prescriptions and 38 percent of mail-order prescriptions.[5] In 2004/2005, the generic fill rate at ExpressScripts, one of the three largest U.S. pharmacy benefits management firms, was 51 percent of mail and retail prescriptions combined; the CEO predicts that it will reach 55 percent in 2006.[6] Thus, there appears to be potential for increasing the use of generics in the Maryland privately insured population.

Table 4. Percent of Prescriptions and Expenditures for Branded and Generic Drugs, Non-Elderly, Privately Insured, 2004

	HIGH-COST USERS*		OTHER USERS**	
	Prescriptions	Expenditures	Prescriptions	Expenditures
PRESCRIPTION DRUG TYPE				
Branded, new ***	13%	20%	10%	17%
Branded, not new***	46%	66%	31%	52%
Generic	38%	12%	55%	28%
Unknown	4%	3%	3%	3%

* High-cost users are defined as persons with spending in the top 25 percent of the spending distribution.

** Other users include persons with spending in the bottom 75 percent of the spending distribution.

***'Branded, new' drugs are those approved by the FDA between 2001 and 2004; branded drugs approved prior to 2001 are classified as 'not new.' Percents may not sum to 100 due to rounding.

The mix of drugs used by high-cost users differs from that for other drug users.

The types of drugs most commonly used by high-cost users differ fairly substantially from those prescribed for other non-high-cost users (see Table 5). Ranking therapeutic drug categories[7] by how much they contribute to spending for high-cost users, the top 10 therapeutic classes account for 37 percent of spending while the top 20 account for 53 percent of spending. For other users, the top 10 therapeutic categories represent 41 percent of spending and the top 20 drug classes account for 58 percent of spending. In the top 10 drug groups for high-cost users, most are treatments for chronic conditions including high cholesterol/heart disease, mental health and gastrointestinal conditions, and remedies for severe and probably chronic pain. In contrast, for other users, the drugs contributing most to spending include contraceptives, several classes of drugs used to treat a range of bacterial infections, and allergy medications.

In addition to the differences in the types of drugs used, within therapeutic categories high-cost users may be obtaining somewhat different drugs and/or dosages. For the 20 drug categories contributing most to spending for high-cost users, the percentage of drug spending attributable to branded drugs was calculated as well as the average cost per medicated day (data not shown). For each of the 20 drug classes, the branded share of total expenditures was higher for the high-cost users compared to other users. (There were 5 exceptions where branded drugs accounted for 100% for all users.) Across the top 20 therapeutic classes, the branded share of expenditures for high-cost users was approximately 11 percentage points higher for high-cost users compared to other users (93% for high-cost users vs. 82% for others).

When looking at cost per medicated day for each of these 20 drug categories, there were also substantial differences between high-cost users and other users. Average costs for a one-day supply were $6.23 for the former group compared to $3.31 for the latter, or almost 90 percent higher for high-cost users. Even when the branded share was the same, the cost per medicated day was higher for high-cost users, suggesting that the particular drug within the category tended to be more expensive or their prescribed daily dosage was higher.

Over half of high-cost users fill prescriptions in at least 6 different therapeutic categories.

Spending for high-cost prescription drug users is driven by the higher number of prescriptions filled and higher costs per prescription, which reflect both the higher number of days supplied for a given prescription and a higher cost per day. While the prescription drug database does not provide diagnostic information, Table 6 provides information on the number of different therapeutic categories for high-cost users as a proxy for the number of different conditions being

treated. The typical high-cost user obtains prescription medicines in 6 different therapeutic categories. While there is not a one-to-one relationship between therapeutic categories and health conditions, the large number of different therapeutic categories in which high-cost users filled prescriptions suggests that these persons are each being treated for a number of health conditions. Median annual spending rises with the number of therapeutic classes, almost doubling from spending for persons with drugs in 1 or 2 therapeutic classes ($1,060) to persons with drugs in 9 to 11 different categories ($1,955). Median spending increases again by 50 percent for those using drugs in 12 or more different classes.

Table 6: Distribution of Spending by Number of Therapeutic Classes for High-Cost Users, Non-Elderly, Privately Insured, 2004

Number of Different Therapeutic Classes for High-Cost Users	Median Expenditures	Percent of High-Cost Users
1–2	$1,060	9
3–4	$1,200	20
5–6*	$1,360	22
7–8	$1,572	18
9–11	$1,955	17
12 or more	$3,258	14
All high-cost users	$1,522	100

* Six is the median number of therapeutic classes for high-cost users, meaning half of these persons use drugs in 6 or more classes and half use drugs in 6 or fewer classes.

Implications

As with health care spending overall, prescription drug expenditures in Maryland are highly skewed, with one-quarter of the non-elderly, privately insured population accounting for 8 out of every 10 dollars spent in 2004. The typical high-cost user spent almost 13 times as much (including both out-of-pocket and reimbursed dollars) and obtained approximately 6 times as many prescriptions as other drug users. Half of high-cost users obtained prescriptions in 6 or more therapeutic categories, suggesting the presence of multiple health conditions.

While recent purchaser-driven initiatives aimed at influencing consumer demand have been shown to slow spending growth, these policies may have only a short-term impact. And, while increased cost-sharing may make the routine consumer more price sensitive, it is not clear what effect it will have on the population of high-cost users, particularly if flat copayments shield the consumer from the impact of the most expensive drugs. Most importantly, because spending is so concentrated, in order to have a significant impact on cost, strategies may need to focus more directly on those persons responsible for the majority of drug spending.

These high-cost users raise concerns not only about spending growth but also with respect to quality and safety. The use of multiple medications and the presence of multiple health conditions raise important issues with respect to the delivery of health care. A recent study of high-cost drug prescription drug users in Canada presented observations of some "worrisome" patterns.[8] Of particular interest, the study noted that half of high-cost users visited three or more family physicians a year, raising the potential for inappropriate medication combi-

Table 5. Drugs with Highest Associated Spending for High-Cost Users and Spending Share for Other Users

Type of Drug	Description/Use	Share of Spending for High-Cost Users (in order)	Share of Spending for Other Users (rank order)
HMG-CoA reductase inhibitors	Commonly known as statins, drugs such as Lipitor and Zocor are used to lower cholesterol.	8.2%	3.5% (4)
Proton pump inhibitors	Used to treat acid reflux, heartburn, stomach ulcers. Leading brands include Nexium and Protonix.	6.7%	2.4% (11)
Selective serotonin reuptake inhibitors (SSRIs)	Newer antidepressants with fewer side effects than the older tricyclic antidepressants. Brands include Lexapro, Zoloft, and Paxil.	5.4%	4.8% (2)
Miscellaneous anticonvulsants	Most commonly used to treat epilepsy.	3.6%	0.6% (*)
Narcotic analgesics	Includes codeine, hydrocodone, and other agents that act in the central nervous system to reduce pain.	2.7%	0.2% (*)
Central nervous system stimulants	Includes amphetamines and methylphenidate (Ritalin), used to treat attention-deficit hyperactivity disorder (ADHD) and narcolepsy.	2.5%	2.8% (8)
Miscellaneous antipsychotic agents	Work by decreasing abnormal excitement in the brain, used to treat schizophrenia, bipolar disorder, depression, Tourette's syndrome, other affective disorders.	2.2%	0.3% (*)
Miscellaneous antidepressants	Antidepressants other than SSRIs and SSNRIs, used to treat depression, insomnia, anxiety, obsessive/compulsive behavior, and addiction.	2.0%	1.0% (*)
Selective serotonin noradrenalin or norepinephrine reuptake inhibitors (SSNRIs)	Newer antidepressants even compared to SSRIs, affect two neurotransmitters or chemicals in brain—serotonin and norepinephrine. Brands include Effexor, Remeron, and others.	1.9%	0.6% (*)
Calcium channel blocking agents	Drugs such as Norvasc are used to treat high blood pressure and control angina pectoris (chest pain) by increasing supply of blood and oxygen to the heart.	1.8%	1.6% (16)

* Indicates drug class not in top 20 drugs in terms of contribution to spending for other users.

nations and drug interactions. Moreover, policies that emphasize restraining consumer demand need to avoid incentives that reduce the use of necessary medications.

With these considerations in mind, the mix of policy tools brought to bear may need to be adjusted somewhat in order to help slow drug spending, and at the same time provide a structure that improves quality and safety.

We should continue to rely on existing approaches that are working, including generic substitution and mail-order delivery. This study shows that high-cost users are less likely to use generics than the rest of the population. Even within the categories of drugs most commonly used by the high-cost users, there is room for increasing the use of generics and, precisely because these are the high-volume users, even modest improvement in moving this population toward greater generic use will reap greater savings than it would among the general population. However, because these are sicker people, cost-sharing may not be sufficient to move them away from the drugs they rely on. Analysis of drug spending data can provide insurers with information on potential generic substitutions that can be shared with the physician and the patient.

Because this population comprises high-volume users, many of whom are chronically ill, there may be a significant percentage of their annual drug utilization that is highly predictable and therefore a prime candidate for mail order.[9] Increasing the use of mail order has the potential for reducing costs for the consumer as well as the insurer and may be a convenient and efficient way for the chronically ill to obtain their maintenance medications.

Existing strategies must be supplemented with medication management and better coordination of care. Newer, more comprehensive strategies target individuals with high-cost, high-impact diseases with an emphasis on integrating pharmacy and medical benefits in order to better manage total costs.[10] These strategies focus on lowering overall costs by encouraging better prescription drug management and compliance. Higher prescription drug spending is expected as use of appropriate pharmaceuticals can offset other more costly medical care (e.g., emergency department visits or hospitalizations). Some of these comprehensive strategies even waive drug copayments to further compliance (e.g., for diabetic testing supplies).[11] A key tool in these strategies is careful monitoring of integrated pharmacy and medical claims that identify over- or underutilization and compliance rates, but more importantly can help to identify persons whose health conditions warrant specific pharmaceutical interventions. Using integrated records along with predictive modeling techniques can also help to identify these high-cost users in the earliest stages and help to prevent major health events.

In the longer term, the development of electronic health records that integrate prescribing history with medical and laboratory information offer more opportunities for managing high-cost users. Precisely because spending is so concentrated among a small percentage of the population, emphasis on these tools that are specifically designed to help sicker, higher-cost patients and their physicians to be more prudent consumers of health care deserve special emphasis.

[1] Tables in this report are based on services and payments captured in the Prescription Drug Component of the Medical Care Data Base (MCDB), which includes insurance claim records of non-institutional and professional services rendered by physicians and non-physician health care professionals to patients who live in Maryland. The Prescription Drug Component is based on a subset of data found on insurance claims paid by most private insurers in Maryland. insurance companies and HMOs meeting certain criteria, namely, that they are licensed in Maryland and collect more than $1 million in health insurance premiums, are required to submit information to MHCC under the Code of Maryland Regulations (COMAR) 10.25.06. Estimates are limited to persons who had at least one prescription drug claim in 2004 and to persons covered by drug contracts with large Maryland insurers (e.g., if an employer, such as the State of Maryland, contracts directly with a pharmacy benefit manager for drug coverage, then use is not included). The data include both retail store and mail order prescriptions.

[2] Maryland Health Care Commission, State Health Care Expenditures: Experience from 2004, Released January 2006.

[3] The median expenditure represents that of the typical user, where half of persons spend more than that amount and half spend less. We present medians rather than means because of the highly skewed nature of the distribution where there are a large number of users with very small expenditures and a small number of users with large expenditures.

[4] Cost per medicated day is calculated by summing all expenditures for a given person and dividing by the sum of the number of days supplied for all prescriptions for that person.

[5] *The Prescription Drug Benefit Cost and Plan Design Survey Report*, 2005 Edition. The generic rate in mail service tends to be lower than in retail store scripts because many of the most commonly dispensed mail-order drugs are not available in generic form. Differences may have to do with the mail-order to retail ratio as well as the fact that many PBM contracts are excluded from the database used for this analysis.

[6] Robert Atlas, Interview: Wrangling Prescription Drug Benefits: A Conversation With Express Scripts' Barrett Toan," *Health Affairs Web Exclusive*, 19 April 2005. When comparing generic fill rates, it should be remembered that PBM contracts may be excluded from the database used for this analysis; thus, actual generic rates in Maryland may be slightly higher than reported.

[7] Therapeutic classes were assigned using the Multum Lexicon Database from Cerner Multum, Inc.(Available at: http://www.multum.com/lexicon.htm - accessed in July 2005). The lexicon uses the term "therapeutic/chemical categories"; there are 281 different categories, not all of which were found in the database used for this analysis.

[8] Kozyrskyj A, Lix L, Dahl M, and Soodeen R. *High-Cost Users of Pharmaceuticals: Who Are They? Manitoba Centre for Health Policy, March 2005*. Accessed at http://www.umanitoba.ca/centres/mchp/reports/reports_05/high-cost.htm on 5-3-06

[9] In addition to tiered copayments, generic and/or therapeutic substitution, and step therapy; incentivized use of mail-order pharmacies is one of the tools used by PBMs to manage prescription drug use and expenditures. The use of mail-order pharmacies was analyzed in some detail in a report by MHCC in December 2005 (see **Mail-Order Purchase of Maintenance Drugs: Impact on Consumers, Payers, and Retail Pharmacies, MHCC, December 2005**). Findings in that report indicated that mail-order use in the Maryland privately insured non-elderly population is lower than nationally, accounting for approximately 10 percent of drug dollars compared to 17 percent in the United States overall.

[10] A discussion of this approach can be found in the March 2004 *Pharmacy Benefit Insider* newsletter at http://www.rxsolutions.com/c/pbi/pbi_view.asp?docid=434.

[11] "DM Programs Can Help Fill 'Gap' Left by Suboptimal Rx Treatments," *Drug Benefit news, April 21, 2006.*